

Contracting and Market Power

Can buyers of agricultural products use contracts to create or exploit market power? Farmers may frequently have few marketing options, either because of broad industry consolidation or because transportation costs limit the area over which products can be shipped. Options may be further constrained by time of harvest, storability or high storage costs, or local buyer capacities. Livestock producers may have access to only a few packers who might buy their animals. Similarly, a small number of processors dominate purchases of some grain and vegetable crops.

Agricultural contracts often govern transactions between farmers and processors in highly concentrated markets. The contracts may help create the large and steady flow of commodity deliveries that large plants need to operate efficiently and minimize processing costs. Contracts may also limit the income risks faced by farmers and shift risks to the large and diversified processors who may be better situated to bear them. But processors may also be able to exercise market power when they have few competitors, forcing agricultural prices below competitive levels. A key issue is whether contracts can facilitate the exercise of market power. Here we describe the conditions under which buyers could reduce prices paid to farmers in livestock markets. Our discussion focuses on buyer market power (monopsony) rather than seller power (monopoly), because buyer power is usually at issue in agricultural markets.

How Contracts Can Be Structured To Exercise Market Power

A buyer exercises market power by exerting downward pressure on prices and maintaining the lower prices by limiting purchases. In competitive markets, rival buyers expand purchases when one buyer reduces them, so in that case one buyer's actions will have no ultimate effect on total purchases in a market or on price. But a single buyer can exercise market power when rivals do not react to the buyer's reduction in purchases, either because there are no rivals or because actual and potential rivals cannot expand their purchases. A group of buyers can together exercise market power if they can act jointly to reduce purchases and force prices down.

Economic theory identifies three ways in which contracts could extend market power, under certain market conditions (Kwoka and White, 2004). Contract terms may *deter entry* by potential rivals; they may *limit price competition* among existing rivals, thereby allowing single firms to exercise market power; or they may facilitate *discriminatory pricing*. We illustrate the three strategies with examples from cattle markets, which have been the source of much of the policy discussion on market power.

1. *Restricting entry*—Meatpacking has important scale economies (larger plants realize lower per animal slaughter costs), so an entrant

must attract a large flow of animals in a local market area to run a plant efficiently (MacDonald, Ollinger, Nelson, and Handy, 2000). If one packer can use contracts to tie up a substantial portion of the local livestock supply, an entrant packer will have to pay substantially higher prices to attract enough cattle, either by paying for contract liquidations or through bidding for enough cattle on the spot market. Contracts, by raising entrants' costs, may hence deter their entry. The existing contractor could then force spot prices down by limiting spot market cattle purchases.

2. *Limiting price competition*—In principle, a contract could also be structured, by using pricing mechanisms common in other industries, to deter rivals from competing aggressively with one another (Xia and Sexton, 2004). Contracts often specify a base price formula. One approach to determining a base price is to set it at the highest spot market price paid for cattle during a comparison period, a mechanism known in the industry as “top of the market” (TOMP) pricing. Contracts often then specify deviations from the base, related to product quality or other features of the transaction. TOMP clauses can transform bidding strategies in spot markets. If a packer offers an unusually high spot price to a seller, perhaps because that seller has other offers, the packer will also have to pay commensurately higher prices on all its TOMP contract cattle, in addition to the cattle in the specific transaction. Faced with the added costs from aggressive spot market bidding, the packer will be more likely to refrain from aggressive bidding for spot market cattle.

Another feature of spot market bidding can limit spot prices and also hold contract prices down when contract price formulas are based on spot prices. In some cattle markets, bids are offered only in whole dollar amounts, such as \$70/cwt. That is strikingly similar to pricing conventions in NASDAQ stock trades, which were alleged to favor brokers and were the subject of a considerable amount of litigation until the conventions were changed (Christie and Schultz, 1994). A packer considering a competitive bid for a shipment of cattle would have to bid a full dollar per cwt above a rival bid in order to obtain the cattle. If that packer also had contract cattle priced under a TOMP formula, the packer would have to consider the effect of that additional dollar on prices paid for the contracted cattle.

This may best be described with an example: Suppose a packer usually aimed to acquire 20,000 cattle per week, half through contracts and half through spot market purchases. Assume that the packer bought 9,000 spot market cattle at a price of \$70/cwt, but would need to pay \$71/cwt (or about \$11.50 more per head) to get the extra 1,000 cattle needed. The extra spot market cattle would allow the plant to run near capacity, reducing per head processing costs. Without a TOMP pricing clause in a contract, the packer's additional costs of obtaining the extra cattle, over the existing price of \$70/cwt would be \$11,500 (\$11.50 per head). With a TOMP clause, the packer would be obligated to also pay \$71/cwt for all its contract cattle, and the additional costs of getting another 1,000 cattle would be \$126,500 (an

extra \$11.50 a head on the 10,000 contract cattle as well as the last 1,000 spot market cattle). In this example, the TOMP clause provides a strong incentive to avoid driving spot market prices up in order to obtain additional spot market cattle. If all competing packers use contracts with TOMP clauses, then they may all refrain from aggressively bidding on cattle, and the clauses would facilitate reductions in competition and in spot and contract prices.

Another contract clause can be used to limit price competition among rival buyers. Some contracts contain confidentiality clauses that require farmers to keep contract details secret, usually from other farmers. Since contractors usually write contracts to access more production than any one farmer has, such clauses could provide buyers with strong informational advantages in negotiations. The Farm Security and Rural Investment Act of 2002 limits the use of such clauses in livestock and poultry contracts and specifically allows farmers to discuss the contract with legal and financial advisors or family members.

3. *Discriminatory Pricing*—Finally, consider the practice whereby a buyer pays different prices to sellers for the same product—for example, for cattle of identical quality. Suppose a buyer has some individual market power, exercised by limiting purchases and forcing prices down. The buyer could then increase profits by buying and processing some additional cattle, but only if the higher price paid for them could be paid just for those cattle, without driving up prices on all the cattle that the packer bought. One way to do that would be to offer an exclusive contract for those cattle at a price above the spot price (the contract is exclusive because it is not made available to all sellers and it covers a limited quantity of cattle). In this way, the packer could force spot prices down while still acquiring enough cattle in spot and contract markets to run plants efficiently, realizing higher profits through lower spot prices as well as lower unit processing costs (Love and Burton, 1999).

When Do Contractual Features Create Market Power?

Several distinctive features of agricultural contracts, when combined with spot market practices, could work to limit competition among buyers. However, those features are likely to lead to the creation or extension of market power only under quite specific circumstances, when other important factors are present.

Under what circumstances, for instance, can contracts limit entry by rival buyers? In the example outlined above, several conditions were needed. First, there must be significant scale economies, so that an entrant would be concerned about obtaining large supplies of raw materials. Second, the contract must tie up local supplies for substantial periods of time; otherwise, an entrant need only wait for contracts to lapse to begin acquiring supplies. However, only some contracts tie livestock sellers and packers together for extensive periods. Hog production contracts do so by requiring large investments on the part of growers and by prohibiting grower sales to other

packers from contracted facilities. Some—though not all—hog contracts also clearly specify a contract life of 5 to 10 years. Poultry contracts require large investments on the part of growers while prohibiting grower sales to other buyers during the life of a specific contract, usually for a single flock or group of flocks in a single time period. Thus, poultry contracts frequently commit the contractor to only a single flock—the contracts do not carry long lives to match the long-lived grower investment, and growers can recontract quickly.

Cattle contracts are also not nearly as binding as hog contracts. They typically cover the short period that the cattle are in the feedlots and frequently do not prohibit a feedlot from selling to other buyers. Without long-term contracts linking packers and sellers, entrants can bid contract cattle away from existing packers.

Next, consider pricing terms, such as those included in TOMP contracts. Such contracts are most likely to reduce price competition if all buyers use them. If only one uses a TOMP clause, that buyer becomes a less aggressive bidder. Rivals, however, can continue to bid aggressively for commodities, and the result will be lower production and higher per unit costs for the buyer with a TOMP clause. As a result, such pricing clauses could lead to abuse of market power if they are used by all leading buyers in a concentrated market. In addition, such contracts also require the added factor of entry barriers to be effective. If contracts lead to reduced price and higher profits in a local market, the conditions should attract entry by rivals.

Another complication arises in the broader economics and antitrust literature: Why would sellers agree to contracts that leave them worse off? If contracts allow packers to keep prices below competitive levels, they also force lower long-term prices on sellers as a group (Posner, 2001). Several recent analyses specify conditions under which some sellers would agree to contracts that harm sellers as a group:

- If there are many sellers, each accounting for only a small share of the market, each may believe that its own actions have no effect on longrun market outcomes. In that case, individual sellers will accept contracts that offer premiums above spot market prices and make those sellers better off. As many sellers accept such contracts, entry is deterred, the existing packer can exercise market power by reducing spot prices (as well as contract prices that are based on the spot price), and sellers as a group are made worse off (Rasmusen, Ramseyer, and Wiley, 1991; Aghion and Bolton, 1987; Innes and Sexton, 1994).
- A packer may offer a few sellers contract terms that make them unambiguously better off; if those contracts serve to deter entry, the packer can exercise market power in the spot market, forcing prices down. In this case, the packer shares the profit from market power with a group of contract sellers (Stefanadis, 1998).

Finally, consider the third way that contracts could extend market power: price discrimination. This strategy does not create market power, but rather allows for greater exploitation of existing market power. Even then, it presents a difficult policy challenge because its effects are not unambiguously bad.

Price discrimination may not be easy to identify. Sellers may receive different prices not only because of price discrimination, but also because of differences in product quality, delivery times, reliability, and volume. Thus, efforts to limit price variation may limit the use of prices as quality incentives. Actual price discrimination can also occur as buyers compete with one another—note that TOMP pricing, for example, works as an anticompetitive device only if it eliminates outbreaks of localized price competition. Finally, even if prices are discriminatory (different prices for identical products), they may in some cases improve performance (Levine, 2002). In some markets, revenues may not cover the costs of large capital-intensive facilities without discriminatory prices. The alternative is an industry of smaller facilities with higher processing costs, higher product prices (leading to smaller quantities), and lower farm prices.

Evidence for Exploitation of Market Power Is Weak

Contracts can be structured to create market power for buyers and reduce farm prices. However, the success of such actions depends on the precise contract terms, as well as the structure of the particular markets and the responses of rival buyers. In order to create or extend market power, contracts must either limit entry by potential rivals into concentrated markets, limit the intensity of price competition by existing rivals, or allow for price discrimination by a firm that already has market power. Those terms, even if they are written into contracts, are unlikely to effectively create or extend market power unless the buying side of the market is highly concentrated, with some restraints on the easy entry of new rivals.

Recent research in agricultural economics has begun to highlight methods by which some contractual clauses can be used to exploit market power (see, for example, Xia and Sexton (2004) and Love and Burton (1999)), just as the research literature summarized above indicates that the details of contract design are important in assessing the effects of contracts on productivity. But we have no empirical work that assesses the incidence of monopsony-enhancing contract clauses, or their effects, in agricultural markets. Future research in this area would be needed to precisely identify the effects of specific contract clauses.